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REVIEW OF MEXICAN BATS OF THE ARTIBEUS
"CINEREUS" COMPLEX

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In attempting to unravel the identity of three small forms of *Artibeus* we have from Guerrero, I have had occasion to review the treatment of the Mexican forms of the small members of that genus. Andersen (Proc. Zool. Soc. London, 1908: 204-319) revised the genus and recognized five species as occurring in Mexico as follows; *Artibeus toltecus toltecus* (Saussure) to which he referred specimens from Durango, Jalisco, Tepic (= Nayarit), Oaxaca, and Veracruz; *Artibeus phaeotis* (Miller) in Yucatan; *Artibeus aztecus* Andersen from Tetela del Volcan, Morelos; *Artibeus nanus* Andersen from Sinloa, Colima Guerrero, and Veracruz; *Artibeus turpis* Andersen from Tabasco.

Hershkovitz (Proc. U. S. Nat. Mus., 1949, 99(3246):429-454) considers *toltecus* and *phaeotis* to be conspecific with the South American form *Artibeus cinereus* (Gervais) but recognizable as distinct subspecies. Later, Dalquest (Proc. Biol. Soc. Washington, 1953, 63:61-66), the last reviewer of the Mexican forms, reduced the number of species of small Mexican *Artibeus* to three (*A. cinereus*, *A. turpis*, and *A. nanus*) by placing *aztecus* as a subspecies of *A. cinereus*.

Because the treatments by both Hershkovitz and Dalquest seemed at variance with the specimens we have accumulated from Mexico, I have attempted to reevaluate the relationships of the five "species" recognized by Andersen. I am indebted to officials of the U. S. National Museum, the Chicago Natural History Museum, the University of Kansas Museum of Natural History, and the Louisiana State Museum of Zoology for the loan of comparative material.

Although *Artibeus nanus* and *A. turpis* resemble *A. cinereus* in having a relatively wide, nearly naked interfemoral membrane, they both differ from that species in having a depressed rostrum, a highly arched cranium and a relatively short palate. *A. turpis* differs from *nanus* mainly in slightly larger size. In fact, the two appear to be geographic races of the same species, with *turpis* occupying the lowlands of eastern and southern Mexico (*Veracruz*: Plan del Rjo. 2, TCWC; Arroyo Azul 1, 1, UKMNH. *Tabasco*: 2 mi. Teapa, 5, UKMNH. *Oaxaca*: 2 mi. S.

Tollocito (= Tollosa), 1, UKMNH) and *nanus* occupying the lowlands of western Mexico (Guerrero: Tierra Colorado (type locality); Tres Palos, 1, TCWC; El Papayo, 1, TCWC. Colima: Hacienda Magdalena, 7, USNM. Sinaloa: Presidio, 1, BMNH). Adult specimens from Petén, Guatemala, are larger than *nanus* from Guerrero (forearm 37.5-39 mm. rather than 35.0-36.5 mm.) and appear to be referable to *turpis*. Two specimens (UKMNH 64923-24) from Astillero, Guatemala, are young individuals with forearms 35 mm. and 36.5 mm., respectively. On geographic probability they, too, should be assigned to *turpis*.

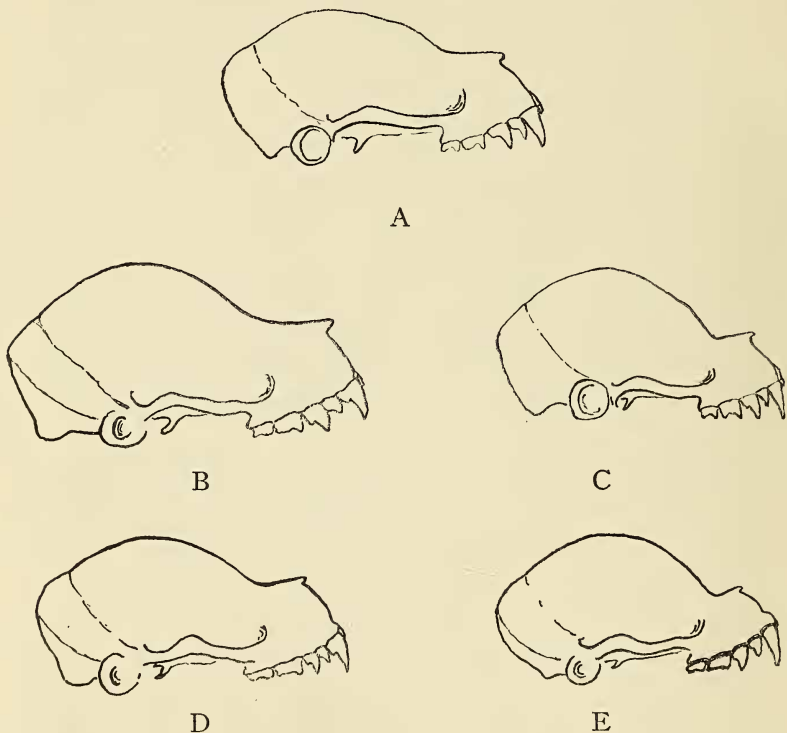


Fig. 1. Cranial profiles of five forms of Mexican *Artibeus* X2.

A. *Artibeus cinereus phaeotis*; B. *Artibeus aztecus*;

C. *Artibeus toltecus*; D. *Artibeus turpis turpis*;

E. *Artibeus turpis nanus*. Note particularly the overall size and especially the profile of the rostrum and frontal region.

The relegation of *Artibeus phaeotis* as a subspecies of *A. cinereus* seems fully justified. Both have a rather wide interfemoral membrane (8-10 mm.) which is naked or nearly so, the whitish supraorbital stripes are usually conspicuous, the slope of the frontal region of the skull is similar, and the length of the forearm is comparable. This form occurs

in the lowlands of eastern Mexico in *Veracruz* (Jesus Caranza, Minatitlán, Río Solosuchil and possibly Achotal), *Yucatan* (Chichen Itza), and *Campeche* (La Tuxpena).

I cannot concur with Hershkovitz (*op. cit.*) and Dalquest (*op. cit.*), however, in aligning *Artibeus toltecus* with *A. cinereus* or with Dalquest's (*op. cit.*) placing of *A. aztecus* as a subspecies of *A. cinereus*. That *toltecus* and *aztecus* are closely related is not questioned, but they both differ from all forms of *cinereus* I have examined (*cinereus*, *rosenbergi*, and *phaetoides*) in (1) interfemoral membrane narrow (6.5 mm. or less), deeply incised, and conspicuously hairy; (2) ears with no trace of white on the rim; (3) whitish supraorbital stripes present but rather inconspicuous; and (4) slope of the frontal region gently rising (fig. 1 b-c). These differences are sufficient, at least to me, to preclude treating them as geographic races of *A. cinereus*.

On the basis of material at hand I consider *aztecus* and *toltecus* not only specifically distinct from *cinereus*, but also from each other. The differences between *aztecus* and *toltecus* are of the magnitude that separate two larger species of Mexican *Artibeus*, namely *lituratus* and *jamaicensis*. *A. aztecus* is larger than *A. toltecus* in all measurements. The specimens from El Salto (*ca.* 2000 ft.), San Luis Potosí, which Dalquest (*op. cit.*) considered as intergrades between *aztecus* and *toltecus* are not, in my opinion, intergrades but rather are clearly referable to *toltecus*. Perhaps he was led to his conclusion because the skull of one of the specimens of *aztecus* (LSUMZ 2790), from Cerro Campanario, San Luis Potosí, approaches *toltecus* in size and is noticeably smaller than the other known specimens of *aztecus*.

All four known locality records of *aztecus* (*Morelos*: Tetela del Volcan, 6550 ft., 4, BSC. *Guerrero*: Omiltemi, 7900 ft., 4, TCWC. *Jalisco*: 2 mi. N Ciudad Guzman, *ca.* 5000 ft., 4, KUMNH. *San Luis Potosí*: Cerro Campanario, 7900 ft., 4, LSUMZ) indicate that this species inhabits mountainous areas at elevations above 5000 feet. Consequently, if *aztecus* intergrades with *toltecus* of the lowlands, such intergrades would most likely be found at middle altitudes. Specimens from near Taxco (4,000 ft.) and Agua del Obispo (3300 ft.) in Guerrero, however, are clearly referable to *toltecus*. Yet *aztecus* has been taken at Omiltemi (7900 ft.) less than 30 airline miles from the latter locality.

Known locality records for *toltecus* in Mexico are at elevations below 5000 feet. Thus, the two forms appear to complement each other geographically, but, until demonstrable intergradation is established, it seems wisest to adopt a conservative view and consider the two as distinct species.

In summary, the five small forms of *Artibeus* in Mexico seem to segregate as follows:

- a. Interfemoral membrane narrow (greatest width 6.5 mm. or less), deeply incised, and conspicuously hairy; ears with no trace of white on rim; whitish supraorbital stripes present but inconspicuous; frontal region of skull gently rising (see fig. 1 b-c).
- b. Forearm 43-47 mm.; 3rd metacarpal 41.3-45.3; greatest length of skull 21.5-23; length of maxillary tooth row (C-M²), 7.0-7.6 *Artibeus aztecus*
- bb. Forearm 38-42 mm.; 3rd metacarpal 37-40; greatest length of

- skull 20.4-21.2; length of maxillary tooth row (C-M²), 6.6-6.9 *Artibeus toltecus*
- aa. Interfemoral membrane wider (greatest width 8-10 mm.), less deeply incised, and almost naked; whitish supraorbital stripes usually conspicuous.
- c. Rostral area of skull short, depressed posteriorly and upturned anteriorly; palatal length to posterior border of incisive foramina less than post-palatal length; ears white-edged.
- d. Forearm, 37.6-40; length of skull, 19-20; length of upper tooth row (C-M²), 5.9-6.7. *Artibeus turpis turpis*.
- dd. Forearm, 35.2-38; length of skull, 18.0-18.7; length of upper tooth row (C-M²), 5.6-6.1. *Artibeus turpis nanus*.
- cc. Rostral area of skull not depressed posteriorly; frontal region gently sloping, not highly arched; palatal length to posterior border of incisive foramina greater than post-palatal length; ears concolor, not white-edged. *Artibeus cinereus phaeotis*.